5. IMPACTS OF COMMERCIAL OPERATION

Following completion of the 3-year demonstration in mid 2011, three scenarios would be reasonably foreseeable: (1) a successful demonstration followed immediately by commercial operation of the facilities at approximately the same production level; (2) an unsuccessful demonstration followed by conversion of the facilities to an integrated gasification combined-cycle power plant; and (3) an unsuccessful demonstration followed by dismantlement of the facilities. Under the first two scenarios, the expected operating life of the facilities would be 26 years.

Under the first scenario, the level of short-term impacts during commercial operation would not change from those described for the demonstration in Section 4 because the proposed facilities would continue operating 24 hours per day with the same operating characteristics. For long-term effects, the level of impacts would be nearly identical to those discussed in Section 4, except for impacts that accumulate with time (i.e., solid waste disposal). As described in Section 4.1.8.2, the coarse slag from gasification would be sold to the extent possible as a byproduct to offsite customers. Any slag not used commercially would be used as fill material for surface mine reclamation. If applicable criteria are met, the fine solids and sludges from treatment of raw water and wastewater would be placed on lands that were previously mined or covered by culm banks (Section 4.1.8.2). Because approximately 1,000 acres would be reclaimed over the 26-year operating life of the proposed facilities, reclamation activities and needs in the vicinity could easily absorb the volume of material that would be generated. However, these materials could possibly require disposal in a commercial landfill (Section 4.1.8.2). Because Pennsylvania Department of Environmental Protection landfill permits provide for an operating life of about 10 years (Section 3.8), no nearby commercial landfills could guarantee capacity to accommodate the facilities' solid wastes throughout the 26-year operating lifetime. However, because of the abundant landfill disposal capacity statewide, which exceeds the state's own needs (Section 3.8), Pennsylvania landfills are likely to have sufficient room for solid wastes from the proposed facilities throughout the 26-year period.

Commercial sale of elemental sulfur generated by the proposed facilities would continue. However, while sulfur consumption currently exceeds production in the United States, global sulfur production is increasing while global demand is decreasing, and supply already exceeds demand globally (Ober 2002). If this trend continues, marketing sulfur could become difficult in the future, which would result in disposal of some or all of the 13 tons per day generated by the proposed facilities. Elemental sulfur would be a nonhazardous solid waste and would be acceptable for disposal in a commercial landfill (Section 3.8), but treatment or other special handling could be required to prevent generation of acidic leachate that could increase the environmental mobility of contaminants in other disposed wastes.

The types of impacts associated with the second scenario (an unsuccessful demonstration followed by conversion of the facilities to an integrated gasification combined-cycle power plant) would be similar to those in the first scenario for the proposed facilities, but at a somewhat reduced level. The F-T synthesis technology would no longer be required, and equipment associated with this

technology, including storage tanks for liquid fuels, would likely be dismantled and removed from the site, which would result in minor impacts (e.g., fugitive dust and emissions from engines during dismantlement and offsite transport of unneeded equipment, additional traffic associated with hauling the equipment off the site). A temporary period of time would exist with negligible operational impacts because the facilities would not be operating during the conversion. Because no liquid fuels would be generated, impacts associated with production and transport of the fuels would not occur. Generation of electricity would be maximized by attempting to upgrade the capacity of the gas turbine and steam turbine. Otherwise, less feedstock and flux would be required to power the turbines without the concurrent production of liquid fuels. Correspondingly, slightly smaller amounts of discharges and wastes would be generated, and reclamation activities would be conducted at a slightly lower rate.

Impacts associated with the third scenario (an unsuccessful demonstration followed by dismantlement of the facilities), would be greatly reduced because the facilities would no longer operate. Minor impacts would result from dismantling and removing the equipment associated with the proposed facilities (e.g., fugitive dust and emissions from engines during dismantlement and offsite transport of plant equipment, temporary traffic associated with hauling the equipment off the site). Following dismantlement and removal, the impacts would become negligible. No electricity, steam, or liquid fuels would be produced. No resources would be required and no discharges or wastes would occur. No anthracite culm would be removed from piles in the local area as feedstock for the proposed facilities, and no associated reclamation of these lands would occur.